IN THE CLAIMS

Amend the claims as set forth below:

1. (original) A router suitable for use in transmitting a packet of data through a communication network wherein the best route through the network is determined at each node, said router comprising:

logic for identifying and extracting higher-layer information carried by at least one of the layers above the lowest three layers of a communication protocol of a received Packet;

a configuration table for associating the high-layer information with lower-layer information carried by at least one of the lowest three layers of the communication protocol; and

a routing table for determining routing of the packet, responsive to the lower-layer information.

2-15. (cancelled)

16. (new) A method comprising:

defining a routing table for each of a plurality of different transport layer protocols used in data packet transmission, wherein each of the different transport layer protocols is associated with a specific routing table, and wherein the different transport layer protocols are selected from a group that includes a Transmission Control Protocol (TCP) and a User Datagram Protocol (UDP), and wherein each routing table associates one of the different transport layer protocols with a plurality of port numbers;

examining a header of a data packet to identify a transport layer protocol and a port number used by the data packet;

routing the data packet according to a nodal pathway described by one of the routing tables according to the transport layer protocol and the port number used by the data packet; and

in response to none of the routing tables containing a nodal pathway for the transport layer protocol and the port number used by the data packet, routing the data packet via a pre-defined default nodal pathway.

17. (new) The method of claim 16, further comprising:

in response to finding an entry in the routing table that matches the transport layer protocol and the port number used by the data packet, replacing Type of Service (TOS) bits in the data packet with TOS bits listed in the routing table as being associated with a specific transport layer protocol and port number, wherein the TOS bits characterize a desired transmission parameter for the data packet.

18. (new) The method of claim 17, wherein the desired transmission parameter is selected from one or more of a group that includes propagation time, throughput and reliability of transmission of the data packet.

19. (new) The method of claim 18, further comprising:

in response to none of the routing tables containing a nodal pathway for the transport layer protocol and port number used by the data packet, setting all of the TOS bits to a default value.

20. (new) The method of claim 16, further comprising:

identifying an application that is using the data packet; and

associating the application with one of the different transport layer protocols.

21. (new) The method of claim 20, wherein the application is for a voice flow, and wherein the application uses UDP plus a Real Time Protocol (RTP) for the voice flow.

22. (new) The method of claim 20, wherein the application is for a data flow, and wherein the application uses TCP plus File Transfer Protocol (FTP) for the data flow.

23. (new) A router comprising:

logic for defining a routing table for each of a plurality of different transport layer protocols used in data packet transmission, wherein each of the different transport layer protocols is associated with a specific routing table, and wherein the different transport layer protocols are selected from a group that includes a Transmission Control Protocol (TCP) and a User Datagram

Protocol (UDP), and wherein each routing table associates one of the different transport layer protocols with a plurality of port numbers;

logic for identifying a transport layer protocol and a port number used by a data packet;

logic for routing the data packet according to a nodal pathway described by one of the routing tables according to the transport layer protocol and the port number used by the data packet; and

logic for, in response to none of the routing tables containing a nodal pathway for the transport layer protocol and the port number used by the data packet, routing the data packet via a pre-defined default nodal pathway.

24. (new) The router of claim 23, further comprising:

logic for, in response to finding an entry in the routing table that matches the transport layer protocol and the port number used by the data packet, replacing Type of Service (TOS) bits in the data packet with TOS bits listed in the routing table as being associated with a specific transport layer protocol and port number, wherein the TOS bits characterize a desired transmission parameter for the data packet.

25. (new) The router of claim 24, wherein the desired transmission parameter is selected from one or more of a group that includes propagation time, throughput and reliability of transmission of the data packet.

26. (new) The router of claim 25, further comprising:

logic for, in response to none of the routing tables containing a nodal pathway for the transport layer protocol and port number used by the data packet, setting all of the TOS bits to a default value.

27. (new) The router of claim 23, further comprising:

logic for identifying an application that is using the data packet; and

logic for associating the application with one of the different transport layer protocols.

28. (new) The router of claim 27, wherein the application is for a voice flow, and wherein the application uses UDP plus a Real Time Protocol (RTP) for the voice flow.

29. (new) The router of claim 27, wherein the application is for a data flow, and wherein the application uses TCP plus File Transfer Protocol (FTP) for the data flow.